We claim:

1. A system for determining speed of a fan powered by a power supply configured to provide a pulse width modulated (PWM) signal to the fan, wherein the fan is operable to generate tachometer pulses indicative of a current speed of the fan, the system comprising:

a test circuit operable to generate test pulses and to provide the test pulses to the fan, wherein a current frequency of the test pulses is proportional to a current frequency of the tachometer pulses;

a frequency divider operable to generate control pulses and configured to receive the tachometer pulses, wherein each one of the tachometer pulses is operable to reset the frequency divider; and

a latch configured to receive the tachometer pulses and the control pulses, wherein each one of the tachometer pulses is operable to reset the latch and each one of the control pulses is operable to set the latch;

wherein a current frequency of the control pulses is lower than the current frequency of the test pulses;

wherein the latch is operable to output recreated tachometer pulses;

wherein a current frequency of the recreated tachometer pulses corresponds to the current speed of the fan; and

wherein the test pulses operate to provide power to the fan.

2. The system of claim 1,

wherein at least one respective test pulse of the test pulses is operable to power the fan when the respective test pulse is generated during a time when the PWM signal is deasserted, wherein the fan will remain powered for the duration of the respective test pulse.

3. The system of claim 2, wherein a duty cycle of the current frequency of the test pulses is substantially lower than 10%.

4. The system of claim 1 further comprising a counter configured to receive the recreated tachometer pulses;

wherein the counter is operable to output a count value corresponding to a current speed of the fan.

5. The system of claim 1, wherein the latch is a negative edge triggered flip-flop.

6. The system of claim 1, wherein the latch is an SR-latch.

7. The system of claim 1;

wherein the test circuit is configured to receive a current duty cycle value of the PWM signal;

wherein the test circuit is further operable to determine the current frequency of the test pulses as a function of the current duty cycle value of the PWM signal.

8. The system of claim 1, wherein the test circuit comprises:

a lookup table configured to receive a current duty cycle value of the PWM signal, and operable to provide a divider coefficient value based on the current duty cycle value of the PWM signal;

a down counter configured to receive the divider coefficient value and a base frequency value, and operable to generate the test pulses, wherein the current frequency of the test pulses is obtained from the base frequency value and the divider coefficient value.

9. The system of claim 8;

wherein the lookup table is user-programmable; and

wherein the lookup table is operable to be programmed during operation of the system.

10. The system of claim 8;

wherein the frequency divider is configured to receive the divider coefficient value and the base frequency value; and

wherein the current frequency of the test pulses is obtained from the base frequency value, the divider coefficient value, and a predetermined constant value that is greater than one and less than the divider coefficient value.

11. The system of claim 10, wherein the predetermined constant value is substantially less than the divider coefficient value.

12. The system of claim 1, wherein the current frequency of the test pulses is at least twice the current frequency of the tachometer pulses.

13. A system for measuring speed of a fan, wherein the fan is operable to generate tachometer pulses having a current frequency corresponding to a current speed of the fan, the system comprising:

a signal generator configured to provide a pulse width modulated (PWM) signal to the fan, wherein the PWM signal is operable to control the speed of the fan, and wherein a current duty cycle value of the PWM signal reflects a desired speed of the fan;

a test circuit operable to generate a test signal with a current frequency that is a function of the current duty cycle value of the PWM signal;

a frequency divider operable to generate control pulses and configured to receive the tachometer pulses, wherein each one of the tachometer pulses is operable to reset the frequency divider; and

a latch configured to receive the tachometer pulses and the control pulses, wherein each one of the tachometer pulses is operable to reset the latch and each one of the control pulses is operable to set the latch;

wherein a current frequency of the control pulses is lower than the current frequency of the test signal;

wherein the latch is operable to output recreated tachometer pulses;

wherein a current frequency of the recreated tachometer pulses corresponds to the current speed of the fan; and

wherein the test signal operates to provide power to the fan.

14. The system of claim 13;

wherein at least one respective test pulse comprised in the test signal is operable to power the fan when the respective test pulse is generated during a time when the PWM signal is deasserted, wherein the fan will remain powered for the duration of the respective test pulse.

15. The system of claim 13, wherein a duty cycle of the frequency of the test signal is substantially lower than 10%.

16. The system of claim 13 further comprising a counter configured to receive the recreated tachometer pulses;

wherein the counter is operable to output a count value corresponding to a current speed of the fan.

17. The system of claim 13, wherein the latch is an SR-latch.

18. The system of claim 17, wherein the latch is a negative edge triggered flip-flop.

19. The system of claim 13, wherein the current frequency of the test signal is at least twice the current frequency of the tachometer pulses.

20. The system of claim 13, wherein the test circuit comprises:

a lookup table configured to receive the current duty cycle value of the PWM signal, and operable to provide a divider coefficient value based on the current duty cycle value of the PWM signal;

a frequency down counter configured to receive the divider coefficient value and a base frequency value, and operable to generate the test pulses, wherein the current frequency of the test pulses is obtained from the base frequency value and the divider coefficient value.

21. The system of claim 20;

wherein the lookup table is user-programmable; and

wherein the lookup table is operable to be programmed during operation of the system.

22. The system of claim 20;

wherein the frequency divider is configured to receive the divider coefficient value and the base frequency value; and

wherein the current frequency of the test signal is obtained from the base frequency value, the divider coefficient value, and a predetermined constant value that is greater than one and less than the divider coefficient value.

23. The system of claim 22, wherein the predetermined constant value is substantially less than the divider coefficient value.

24. A system for measuring speed of a fan in a system comprising a fan and a signal generator, wherein the fan is operable to generate tachometer pulses having a frequency corresponding to a current speed of the fan, wherein the signal generator is configured to provide a pulse width modulated (PWM) signal to the fan, wherein the PWM signal is operable to control the speed of the fan, and wherein a duty cycle value of the PWM signal reflects a desired speed of the fan, the system comprising:

a test circuit operable to generate a test signal with a frequency that is proportional to the duty cycle value of the PWM signal; and

a frequency divider operable to generate control pulses and configured to receive the tachometer pulses, wherein each one of the tachometer pulses is operable to reset the frequency divider; and

a latch configured to receive the tachometer pulses and the control pulses, wherein each one of the tachometer pulses is operable to reset the latch and each one of the control pulses is operable to set the latch;

wherein a current frequency of the control pulses is lower than the current frequency of the test signal;

wherein the latch is operable to output recreated tachometer pulses;

wherein a current frequency of the recreated tachometer pulses corresponds to the current speed of the fan; and

wherein the test signal operates to provide power to the fan.

25. A system comprising:

a fan operable to generate tachometer pulses having a frequency corresponding to a current speed of the fan;

a signal generator configured to provide a pulse width modulated (PWM) signal to the fan, wherein the PWM signal is operable to control the speed of the fan, and wherein a duty cycle value of the PWM signal reflects a desired speed of the fan;

a test circuit operable to generate a test signal with a frequency that is proportional to the duty cycle value of the PWM signal;

a frequency divider operable to generate control pulses and configured to receive the tachometer pulses, wherein each one of the tachometer pulses is operable to reset the frequency divider; and

a latch configured to receive the tachometer pulses and the control pulses, wherein each one of the tachometer pulses is operable to reset the latch and each one of the control pulses is operable to set the latch;

wherein a current frequency of the control pulses is lower than the current frequency of the test signal;

wherein the latch is operable to output recreated tachometer pulses;

wherein a current frequency of the recreated tachometer pulses corresponds to the current speed of the fan.

26. The system of claim 25, wherein the test circuit is operable to provide the test signal to the fan, and wherein the fan is further operable to generate a tachometer pulse based on a current rotational state of the fan in response to a test signal pulse in the test signal.

27. The system of claim 25, wherein the fan speed is rotational fan speed.

28. The system of claim 25, wherein the signal generator is configured to receive a count value of a number of recreated tachometer pulses, and is operable to update the duty cycle of the PWM signal based on the count value;

wherein the count value reflects the current speed of the fan.

29. The system of claim 25, wherein the signal generator is a PWM signal generator.

30. The system of claim 25, further comprising a duty cycle register configured to supply the test circuit with data specifying a number of pulses to create in the test signal for a given time period.

31. The system of claim 25 further comprising a counter operable to receive the recreated tachometer pulses and to generate a count value based on the recreated tachometer pulses.

32. The system of claim 25, wherein the frequency of the test signal is at least double a frequency of the tachometer pulses determined by the duty cycle value of the PWM signal.

33. The system of claim 25, wherein a count of the tachometer pulses corresponds to the current speed of the fan.

34. The system of claim 25, wherein the system is a fan-based cooling system for cooling an electronic device.

35. The system of claim 34, wherein the system is a computer cooling system.

36. A method for measuring speed of a fan, the method comprising:

generating a PWM power signal to power the fan;

generating test pulses, wherein a current frequency of the test pulses is proportional to a current duty cycle value of the PWM power signal;

operating the test pulses to power the fan, wherein the fan remains powered for the duration of each of the test pulses;

receiving tachometer pulses from the fan;

generating control pulses using the tachometer pulses, wherein a current frequency of the control pulses is lower than the current frequency of the test pulses;

generating recreated tachometer pulses using the tachometer pulses and the control pulses;

counting a number of recreated tachometer pulses during a determined period of time; and

calculating a count value based on the number of fan pulses;

wherein the count value reflects the current speed of the fan.

37. The method of claim 36, wherein the current frequency of the test pulses is at least twice a current frequency of the tachometer pulses.

38. A method for measuring speed of a fan operable to be powered by a pulse width modulated (PWM) power signal, wherein the fan is operable to generate a tachometer signal indicative of a current speed of the fan, the method comprising:

generating a test signal, wherein a current frequency of the test signal is proportional to a current duty cycle value of the PWM power signal;

generating a combined power signal by combining the test signal with the PWM signal, and powering the fan with the combined power signal;

generating control pulses using the tachometer signal, wherein a current frequency of the control pulses is lower than the current frequency of the test signal;

generating a recreated tachometer signal using the tachometer signal and the control pulses;

calculating a count value based on the recreated tachometer signal;

wherein the count value reflects the current speed of the fan.

39. The method of claim 38, wherein in said powering the fan with the combined power signal at least one respective test pulse comprised in the test signal is operable to power the fan when the respective test pulse is generated during a time when the PWM power signal is deasserted, wherein the fan will remain powered for the duration of the respective test pulse.

40. The method of claim 39, wherein a duty cycle of the current frequency of the test signal is substantially lower than 10%.

41. The method of claim 38;

wherein the recreated tachometer signal comprises recreated tachometer pulses;

wherein said calculating comprises counting a number of recreated tachometer pulses within a predetermined period of time;

wherein the count value is the number of recreated tachometer pulses counted within the predetermined period of time.

42. The method of claim 38, wherein said generating the test signal comprises:

receiving a current duty cycle value of the PWM power signal; and

determining the current frequency of the test signal as a function of the current duty cycle value of the PWM power signal.

43. The method of claim 38, wherein said generating the test signal comprises:

providing a divider coefficient value based on the current duty cycle value of the PWM power signal; and

dividing a base frequency by the divider coefficient value to obtain the current frequency of the test signal.

44. The method of claim 38, wherein said generating the control pulses comprises:

receiving a current duty cycle value of the PWM power signal; and

determining the current frequency of the control pulses as a function of the current duty cycle value of the PWM power signal.

45. The method of claim 38, wherein said generating the control pulses comprises:

providing a divider coefficient value based on the current duty cycle value of the PWM power signal;

adding an offset number to the divider coefficient value to obtain a new divider coefficient value;

dividing a base frequency by the new divider coefficient value to obtain the current frequency of the control pulses.

46. The method of claim 38, wherein the current frequency of the test signal is at least twice the current frequency of the tachometer signal.